

Remarks

In this discussion set forth below, Applicant does not acquiesce to any rejection or averment in this Office Action unless Applicant expressly indicates otherwise.

The Office Action dated April 8, 2008 listed the following rejections: claims 1, 2 and 10 stand rejected under § 102(b) over Wang (U.S. Patent No. 6,074,922); and, under § 103(a), claims 3-7 and 9 stand rejected over Wang in view of Hashimoto (U.S. Pub. No. 2001/0003056); and claim 8 stands rejected over Wang in view of Wu (U.S. Patent No. 6,348,390).

Applicant respectfully traverses the § 102(b) rejection of claims 1, 2 and 10 and the § 103(a) rejections of claims 3-9 (each of which is based on the Wang reference) because the cited portions of Wang do not correspond to the claimed invention which includes, for example, aspects directed to forming a compound of a metal layer and a further semiconductor material that is part of a gate region. The Office Action erroneously asserts that Wang teaches forming titanium silicide 42 from metal layer 40 and polysilicon gate 16. *See, e.g.*, Figures 6 and 7. Instead the cited portions of Wang teach that the titanium layer 40 is transformed into titanium silicide 42 by a thermal annealing cycle. *See, e.g.*, Col. 3:59-67. Thus, the cited portions of Wang do not teach forming a compound from metal layer 40 and polysilicon gate 16.

Moreover, the cited portions of Wang further fail to correspond to aspects of the claimed invention directed to forming a compound of the metal layer and the semiconductor material of the substrate. As discussed above, the cited portions of Wang teach that the titanium layer 40 is transformed into titanium silicide 42 by a thermal annealing cycle, instead of being formed as a compound of the titanium layer 40 and the semiconductor substrate 10. *See, e.g.*, Col. 3:59-67. Applicant previously presented arguments regarding Wang's lack of correspondence to the claimed invention in the RCE filed on February 4, 2008, to which the Examiner failed to respond as required. *See, e.g.*, M.P.E.P. § 707.07(f) ("Where the applicant traverses any rejection, the examiner should, if he or she repeats the rejection, take note of the applicant's argument and answer the substance of it."). Applicant submits that the Examiner, in the instant Office Action, improperly repeated the previous rejections based on the Wang reference without responding to the substance of Applicant's previous arguments.

In view of the above, the cited portions of the Wang reference do not correspond to the claimed invention. Accordingly, the § 102(b) rejection of claims 1, 2 and 10 and the § 103(a) rejections of claims 3-9 are improper and Applicant requests that they be withdrawn.

In an effort to facilitate prosecution, Applicant has amended claim 1 to recite forming a compound, that includes at least a portion of the source and drain regions, of the metal layer and the semiconductor material, and forming a compound, that includes at least a substantial portion of the further semiconductor material, of the metal layer and the further semiconductor material. As is shown in Figures 6 and 7 of Wang, the part of the titanium layer 40 that is on top of source and drains regions 36 is transformed into titanium silicide 42; however, the titanium silicide 42 does not include a portion of the source and drains regions 36. In addition, the part of the titanium layer 40 that is on top of polysilicon gate 16 is transformed into titanium silicide 42; however, the titanium silicide 42 does not include a substantial portion of the polysilicon gate 16. Accordingly, Applicant requests that the § 102(b) rejection of claims 1, 2 and 10 and the § 103(a) rejections of claims 3-9 be withdrawn.

Applicant further traverses the § 103(a) rejection of claim 8 because the Office Action fails to provide an adequate reason why the skilled artisan would modify Wang with the cited teachings of the Wu reference. This approach is contrary to the requirements of § 103 and relevant law. *See, e.g., KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (U.S. 2007) (“A patent composed of several elements is not proved obvious merely by demonstrating that each element was, independently, known in the prior art.”). The Office Action acknowledges that Wang does not teach removing spacers 34. The Office Action then asserts that the skilled artisan would modify Wang to remove the spacers 34 as taught by Wu in order “to form extended source/drain regions.” The Wang reference, however, already teaches that lightly doped source and drain regions 32 (*i.e.*, extended source/drain regions) are formed prior to the formation of the spacers 34. *See, e.g.*, Figures 2-4 and Col. 3:35-36. Applicant submits that the Office Action’s alleged motivation of the proposed combination is based on a nonexistent problem that has already been addressed by the Wang reference. The requirement for providing a sufficient reason to combine references has been explained in specific examples through

USPTO Board decisions and, in one such decision, the USPTO Board has opined that there is no proper motivation to combine where the alleged purpose for combining is to address a problem that the prior art has already addressed. *See, e.g.*, www.iptoday.com/articles/2007-09-nowotarski.asp, which discusses numerous Board decisions in which Examiners' rejections were overturned, in view of *KSR*, due to lack of a sufficient reason to combine. Thus, as explained in such recent decisions, it is improper to combine references without any real motivation such as here, where a nonexistent problem is being addressed by the Office Action. Accordingly, the § 103(a) rejection of claim 8 is improper and Applicant requests that it be withdrawn.

Applicant further traverses the § 103(a) rejection of claim 3 because the skilled artisan would not be motivated to modify the Wang reference in the manner proposed by the Office Action. Claim 3 sets forth that the "further semiconductor region is completely consumed during the formation of the compound of the metal layer and the further semiconductor material". In contrast, Wang transforms the titanium layer 40 into titanium silicide 42 while avoiding transformation or consumption of its gate 16. *See, e.g.*, Figure 6 and Col. 3:58-62. Apparently recognizing this issue, the Office Action proposes that the prior art would lead a skilled artisan to modify the teaching of the Wang reference by Hashimoto's teaching that, for a certain embodiment in the Hashimoto reference, Hashimoto's gate can be consumed as part of its semiconductor manufacturing process.

Applicant disagrees and submits that the skilled artisan would not be motivated to implement such a modification of the Wang reference in part because the modification attempts to solve a problem that is not present in the cited embodiment and because the modification drastically alters the entire process and structure taught by the Wang reference. In this and other regards, the Wang reference clearly teaches away from this modification proposed by the Office Action. *See, e.g.*, M.P.E.P. § 2145. As is well-established (before and after the *KSR* decision), such a rejection is improper because the proposed modification would undermine the main objective and embodiment of the Wang reference and/or is based on an attempt to solve a problem that is not present in (and not needing to be addressed by) the Wang reference.

Moreover, a main objective of the Wang reference is to form a metal silicide on the top surface of the gate electrode in order to solve the resistance degradation problem for narrow polysilicon lines caused by salicide non-uniformity (discussed in the background section of the Wang reference and at Col. 4:12-14). Accordingly, the rejection violates M.P.E.P. § 2143.01. *See also In re Gordon*, 733 F.2d 900, 221 U.S.P.Q. 1125 (Fed. Cir. 1984) (A §103 rejection cannot be maintained when the asserted modification undermines purpose of main reference.). Applicant previously presented arguments regarding the impropriety of the Office Action's proposed modification of the Wang reference in the RCE filed on February 4, 2008, to which the Examiner failed to respond as required. *See, e.g.*, M.P.E.P. § 707.07(f) discussed above. Applicant submits that the Examiner, in the instant Office Action, improperly repeated the § 103(a) rejection of claim 3 without responding to the substance of Applicant's previous arguments.

In view of the above, there would be no motivation for the skilled artisan to modify the Wang reference in the manner proposed by the Office Action. Accordingly, the § 103(a) rejection of claim 3 is improper and Applicant requests that it be withdrawn.

In view of the remarks above, Applicant believes that each of the rejections has been overcome and the application is in condition for allowance. Should there be any remaining issues that could be readily addressed over the telephone, the Examiner is asked to contact the agent overseeing the application file, Peter Zawilski, of NXP Corporation at (408) 474-9063 (or the undersigned).

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